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AUTHOR Dawson, George
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ABSTRACT

This study guide provides an overview and model of business research. First, introductory material defines research and discusses the benefits of studying business research methods for both producers and consumers of research. In the next section different types of research are discussed, including experimental, ex post facto, quasi-experimental, survey research, case studies, historical research, philosophical inquiry and policy analysis, and comparison studies. Next, a model for approaching a research problem is presented which calls for the following steps: (1) identify and define the problem; (2) explain the significance of the problem; (3) set forth the purposes of the study; (4) examine related literature; (5) formulate hypotheses; (6) decide on the type of information needed; (7) decide on the methods to be used in gathering the data and in analyzing it; (8) carry out the research plan; (9) compile the data and analyze the findings; (10) interpret the results and draw conclusions; (11) write a report and make recommendations; and (12) prepare a follow-up study. The next section discusses prerequisites for the study of business research methods such as basic statistics and college algebra. The last sections list required readings and recommended supplements, ideas for learning activities, and a bibliography. (RO)

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BUSINESS RESEARCH METHODS

A STUDY GUIDE

George Dawson

1984

EMPIRE STATE COLLEGE

State University of New York

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Business

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George Dawson

1984

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BUSINESS RESEARCH METHODS

A Study Guide

Introduction

What is research? To the seventh-grade pupil it may mean going to the school library and looking in an encyclopedia for information on a particular subject. To the man or woman "in the street" it may conjure up images of a person in a white coat in a laboratory, tinkering with test tubes and discovering some new cure for a disease. There are definitions of research that cover both activities. According to the Funk & Wagnalls Standard Dictionary of the English Language, research can be defined very simply as "studious inquiry" (which might serve to place our seventh-grader in the research ballpark) or it can mean "A systematic investigation of some phenomenon or series of phenomena by the experimental method" (which would rule out seventh-grade Johnny, but might -- or might not -- cover Dr. Tess Tube in the medical laboratory). For our purposes, we shall accept the definition given in Webster's Third New International Dictionary, wherein research is defined as --

> Studious inquiry or examination; critical and exhaustive investigation or experimentation having for its aim the discovery of new facts and their correct interpretation, the revision of accepted conclusions, theories, or laws in the light of newly discovered facts, or the practical applications of such new or revised conclusions, theories, or laws.

Thus, research does not have to involve the experimental method (although this is indeed one extremely important type of research), but must be something other than casual observation or

simply copying what someone else has already written.

Broadly defined, research can range from fact-finding surveys to tightly controlled experiments. As an example of the former, a business executive might want to know something about the income levels and spending habits of potential customers in a given market area, and might then design a fact-finding study to obtain the desired information. The results could be of great importance in deciding whether or not to open a retail outlet in the area. In seeking to obtain the greatest output at the lowest possible cost, a manager might set up a controlled experiment to compare one production technique with another. These are but two types of research that can be found in business situations. In any event, everyone in business is affected by research, directly or indirectly. Practically every business person is a consumer of research. That is, everyone probably uses research findings in forming various kinds of policies, in making decisions, and in implementing policy. Many business persons are also producers of research, designing and/or carrying out studies to answer some question or to solve some problem of importance to the firm.

Public policy makers whose decisions affect business are also important users of research. For example, the Justice Department might do research to find out how much of a particular market is controlled or dominated by a few large firms before deciding whether or not to take action under the anti-trust laws. An important public issue that needs research in the 1980s is the issue of industrialization policy. Studies could be under-

taken to ascertain the extent to which American industries are being replaced by foreign producers in the world marketplace, and to try to identify the causes of the decline of some industries in comparison with foreign competitors.

The study of business research methods can help one to become more efficient, whether one becomes a producer or a consumer of research. The producer of research must study research methods and statistical techniques to be able to plan, conduct, or manage research projects. The consumer of research will be able to survive with less technical knowledge, but he or she will find that an understanding of research is important nevertheless. To be able to read research-oriented business literature, to grasp the implications of a research report, to tell "good" research from "bad," or to converse intelligently with a research specialist, the business person must study a number of the facts, concepts, principles, theories, and techniques pertaining to research. Although one course in business research methods will not make the student an expert, it should help to prepare him or her to be a wise consumer of research; and it should provide the basic knowledge and understanding that is essential for the person who does go on to become a producer of research through more advanced study or through on-the-job training and experience.

In regard to policy making, research cannot tell us what we ought to do. Much depends upon social values, ethical considerations, and political realities. Research cannot show what is right or wrong, or what our social and economic goals ought

to be. It can, however, provide valuable information for those who make or influence policy. It can help to identify problems, to ascertain possible causes of problems, and to determine what would be the most efficient way of coping with the problems. Both in the private and public sectors, many policy decisions have been ineffective or even counterproductive because of the lack of adequate research. And, like all useful things, research can be abused and misused. The more one knows about research methods, the less likely it is that one will be misled or confused by inadequate, poorly planned, or spurious research.

Types of Research

There are many different types of research, and there are many ways of categorizing research. For example, one might try to categorize research in terms of the discipline or field in which the research is done. Thus, there would be marketing research, educational research, psychological research, biological research, historical research, and so on. Another way of categorizing is to refer to the basic type of research method being employed. (Note, however, that the same basic methods can be used in many different disciplines.) Here we might find such categories as descriptive studies, causal studies, ex post facto research, experimental research, quasi-experimental research, and case studies. There is some overlapping here, and it is possible to find research projects that include two or more of these methods.

This suggests still another way of categorizing research -- by the nature of the question to be answered or the problem to be

solved. An example of this might be attitude or opinion studies that are designed to find out how people think or feel about certain issues. These studies can be found in many disciplines, such as marketing, sociology, and psychology; and they can utilize several research methods. Another example is the impact study, which is sometimes important in the formulation of policies. For instance, before permitting a particular type of industry to become established in an area, some agency of government might demand that an impact study be made to ascertain the probable effects of the industry on the natural environment. It should be noted, also, that within any category of research listed above there can be many sub-categories. The student can use any system for categorizing research that suits his or her purposes, as long as the system is clear to the instructor (or mentor) and as long as it is convenient and clearly understood by all persons involved.

Research attempts to answer such questions as: What? Why? How? How do you know? For example, in approaching the issue of industrialization policy, research could help to provide answers to these questions:

- What is the status of the United States steel industry in comparison with the steel industries of other nations?
- Why have Japanese automobile manufacturers captured portions of the market formerly served by American automobile manufacturers?
- How have the Japanese achieved better productivity records than Americans producing similar products?

Many more examples of research topics and questions will be pre-

sented in other parts of this study guide.

It is not possible in this brief study guide to discuss every type of research. The student is urged to learn as many types as possible, noting how those types of research can be used in his or her field. We shall briefly discuss a few types, however, simply to introduce the student to some of the commonly used research methods and designs. (The textbook and other readings used in your study of research methods should provide further details and may include additional types and categories.)

Experimental research is thought by some to be the "most scientific" type. An important characteristic of this type is that the researcher carefully controls the variables being studied. For example, if we are attempting to see what factors account for the defects in the goods we are producing, one variable we might examine is the training provided for production workers. Another might be the types of tools given to the workers. In business research, however, controlling the variables is not always as simple as it seems to be in the laboratory of a physicist, biologist, or engineer.

Suppose that a manufacturer wants to find out if a new tool will yield greater output per worker-hour than the tool now being used. A research project is set up to learn if it would be worthwhile to invest in the new tool for all workers. The researcher randomly selects a group of workers to serve as the "experimental group." (Random selection means that some sort of technique was used whereby all workers had an equal chance of being chosen.)

Before the new tool is introduced, the researcher carefully measures the output per hour of both the experimental group (sometimes called the "treatment group") and the control group.

After the new tool has been given to the experimental group, the researcher again measures output per hour. This may be done only once, or it may be done several times. (It would probably be done several times because the workers might need time to get used to using the new tool. Also, the researcher might want to know if any increase in productivity apparently resulting from the use of the new tool is temporary or long-lasting.) After all of the measures have been made, the researcher will compare the results to see if there is a significant difference between the hourly output (productivity) of the two groups of workers. By "significant" we mean that a statistical test will be made to determine whether or not the difference was attributable to chance or to an error in drawing the sample of workers. Or, was the difference so great that it was not likely to have been the result of chance or of an error in drawing the sample?

If the researcher concludes that the experimental group significantly increased its output, while the control group did not, the manufacturer will probably decide to provide all workers with the new tool. If the researcher concludes that there was no significant difference (that any difference he or she observed might be the result of chance or of a sampling error), the manufacturer will probably decide not to invest in the new tool.

Although an actual research project would probably be more

complicated than this, it should be clear to the student that experimental research of this type can be very valuable to management.

Some Empire State College students have actually done simple experimental research projects as parts of learning contracts. One student was interested in the effectiveness of a particular type of advertising display in selling a health food product. He arranged to have his experimental display placed in a randomly selected group of health food stores in a particular area. Other health food stores in that area served as the control group. He gathered sales data on the product from all the stores, going back about a year before the new displays were introduced. Then he obtained sales data for the product for several months after the introduction of the new displays in the experimental stores. A significant increase in sales of the product in those stores convinced him that the new type of display would increase sales in all stores.

Again, this is an oversimplification of a complex research techniques. In this case there could have been many other variables affecting the sales -- variables that the researcher could not control. For example, suppose that the sales people in the experimental stores had consciously or unconsciously increased their efforts to sell the product? Difficulty in controlling the behavior of humans is one of the weaknesses in research in business, marketing, and the social sciences in general. If the student had had the time and resources to do so, he might have

gone further by removing the displays from the experimental stores and putting them in the control stores. If sales of the product then declined in the first group of stores and rose in the second group, he would be confirming his initial findings regarding the effectiveness of the displays.

To summarize, some basic characteristics of experimental research are as follows:

- The researcher intervenes in the situation. He or she does not simply accept conditions as they already existed.
- The researcher controls or manipulates variables.
- The researcher tries to remove "confounding variables" -- elements that would tend to distort or confound the results.
- The researcher employs randomization, a process whereby every member of the target population has an equal chance of being assigned to control or experimental groups.
- The researcher attempts to establish cause and effect.
- The research can be replicated. That is, others can set up similar experiments, use similar (or identical) research designs and techniques, and re-test the hypotheses. (Hypotheses are tentative assumptions or "educated guesses" about the outcomes of the research, or about causes and effects.)

Although experimental research is considered to be very powerful and scientific, especially in determining cause and effect, it is not flawless. The very fact that the researcher intervenes in the situation raises questions about the results. Conditions established by a researcher in a laboratory or in a highly controlled environment may differ from conditions existing in nature or in a real-life situation. If so, then the researcher's findings may not really apply to the real-life situ-

ation. This is not to say that policy-makers should ignore experimental research, but simply that they should be aware of its possible shortcomings as well as understanding its great strengths.

Ex post factoresearch (sometimes called "retrospective" research) is also commonly used. This differs from experimental research in that the researcher does not intervene in the situation. He or she has no control over the conditions in that situation because the events have already happened. The researcher must examine data that already exist. (The fact that the data already exist does not always mean that they are easy to obtain. As any historian will testify, simply finding out what happened can be difficult -- sometimes impossible!) Suppose, for example, that a manufacturer of air conditioners finds that sales are suddenly dropping. A research project is set up to learn the probable causes of this decline in sales in the market area in question.

The researcher will most likely design a correlation study in an attempt to find out what variables appear to be associated with the decline in sales. (Note, however, that a high correlation between two variables does not prove that one caused the other -- it simply suggests that the two tend to move together. Indeed, it is possible that some third variable explains the fact that the two tended to move together. High correlation may provide clues to causation, but it does not establish proof.)

The variables to be examined might include such things as changes in the weather (to what extent a drop in temperature is

associated with a drop in sales); the appearance of competitors in the market (other manufacturers may be "grabbing our customers"); a general decline in the economy (people may not buy as many air conditioners during a recession); a change in sales techniques being used; an increase in the cost of energy (it costs more to run an air conditioner); a drop in housing construction (fewer new houses may mean that the demand for new air conditioners will decline); and the appearance of a substitute product ("whole-house" attic fans might be cheaper and nearly as efficient). If the researcher is able to obtain reliable data on all variables of interest, and if the appropriate statistical techniques are used to analyze the data, it might be possible to conclude that the decline in sales is associated with one or more of these independent variables. (In this case, we consider the change in the sales of air conditioners to be the dependent variable. The variables that help to explain the change in sales are the independent variables.)

The researcher should be able to identify the variables that are most important, noting that a certain percentage of the variation in sales is explained by variable number 1, that a certain percentage is explained by variable number 2, and so on. If the research was done properly, the manufacturer will have a good indication of what to look for in explaining the decline in sales. It is probable, however, that some portion of the variation will remain unexplained. Perhaps there were other variables that the researcher failed to take into account or that could

not be measured.

The difficulties in this type of research should be obvious, but it also has advantages. In experimental research we noted that the researcher intervenes in the situation. In the example of the new tool, a sample of workers was selected to receive the new tool. This might have made them feel "special" or even a bit superior to the other workers, motivating them to work harder and more efficiently. Thus, a psychological factor known as the "Hawthorne effect" might have accounted for the increase in productivity. (The name comes from the Hawthorne plant of the Western Electric Company, where researchers were experimenting with the lighting in the workplace. When production increased regardless of the level of illumination, the researchers realized that their mere presence might be influencing the workers. For details on the Hawthorne studies, see Daniel Wren's The Evolution of Management Thought, 2nd ed., chapter 13. This was published by John Wiley & Sons in 1979.) In ex post facto studies no intervention occurs, and thus the Hawthorne effect is avoided.

One type of research can often lead to the use of another type. In this example, suppose that the only significant variable was a change in the techniques used by sales people. The manufacturer of air conditioners might conclude, then, that the probable cause of the decline was the failure of the new sales technique. A controlled experiment might then be planned to try various sales techniques to see which ones achieved the best re-

sults. The research would now try to control (or "hold constant") all factors except sales techniques, randomly assign some of the sales people to using various techniques, and compare the results between or among experimental and control groups.

Quasi-experimental research combines some of the elements of experimental research with some of the elements of ex post facto research. To stick with the example used above, let us suppose that the researcher is not able to exercise tight control over the situation. He or she might not be able to assign sales people randomly, for instance. Perhaps the sales people are already grouped in some way for the administrative convenience of the firm, and the manager does not want anyone to disrupt this arrangement. The researcher, then, must work with "intact" groups. Now the researcher might examine the sales records of these groups and find that they are significantly different. It turns out that people in the experimental groups had significantly better sales records from the start. At the end of the experimental treatment the researcher finds that the experimental sales persons greatly (and significantly) improved their sales records, while there was little improvement on the part of the control groups.

Can the researcher conclude that the treatment was therefore effective? No, because the difference may be accounted for by the fact that those in the experimental group were better sales persons anyway. Fortunately, however, there is a way of adjusting for the differences that were found between the groups at

the start. (A statistical technique known as "analysis of covariance" can be used for this purpose.) Thus, even though the researcher was unable to control the group assignments, making it impossible to do a true experimental research project, this quasi-experimental design could yield useful information. Indeed, the perfect experimental research design is probably not possible in any case.

Survey research is designed to provide a description of an existing situation. It includes relatively simple fact-finding studies as well as more complex and difficult projects aimed at ascertaining what people think about certain issues or how much they know about a subject. The researcher is not attempting to make predictions, and he or she does not intervene in the situation in an effort to control the variables. (Some intervention might be said to occur, however, when the researcher administers a questionnaire or interviews people. This alerts people to the fact that their views are being sought or that their behavior is going to be studied, and this may affect their responses or alter their behavior in some way.) In any event, there is no controlled experimentation.

Survey research is common in marketing, but can be found in other business areas as well. Before attempting to market a product in a given area, a firm might conduct a survey to learn about the population of that area. The types of information sought might include average household income, the income range (the difference between highest and lowest incomes), the make-up

of the population in terms of age, the average educational level, and facts about the buying habits of the people. One Empire State College student conducted a survey of this type in an area on Long Island. She was tentatively planning to open a store to sell high quality (and high priced) paintings and other artistic works. Her survey, which was done as part of a learning contract, convinced her that her plans were unrealistic. She found that few people had incomes high enough to afford expensive art works, and that few were interested in such items. The time and money (a small amount) that she invested in this survey probably saved her from a catastrophic experience in business. (It is interesting to note that after graduating from Empire she became a researcher assistant in a business library.)

Although it was stated above that fact-finding studies can be "relatively simple," it must not be assumed that they are always easy. Sometimes, much of the desired information is already available from census data or from data gathered by local governments, public utilities, banks, and the like. In other cases, the researcher must design techniques to obtain the needed information. If the target population is small it might be possible to include every member in the survey, but in most cases the researcher must use a sample. (When all members of the population are included it is referred to as a census.) The student should consult a good text on statistics or research methods to learn about the different types of sampling techniques. Most basic texts in statistics and research methods show how survey data can be re-

corded, analyzed, and depicted. It is particularly important to use appropriate statistical techniques when a sample has been used. This is because the researcher can't be absolutely certain that the sample accurately represents the total population, and thus he or she must use statistical analysis to make an estimate of how closely the data describing the sample also describes the population.

Surveys to identify attitudes and opinions are very common. Marketing researchers are often asked to find out what people think about a particular company, product, or service. A firm might want to know what its employees think about its policies and procedures. A recent Empire State College graduate designed a questionnaire to learn the opinions of all classes of employees in a very large firm in New York state. The company provided the funds to print, administer, score, and analyze the several thousand questionnaires. The researcher found that those in top management were totally satisfied with the company, its employee relations, and its policies. As she went farther down the ladder, however, she found more and more evidence of a lack of understanding of policy, of negative attitudes toward the firm, and of dissatisfaction with company procedures. As a result, management realized that the firm had a morale problem that they had been unaware of, and action was taken to improve the situation. In short, survey research can be of great importance to any organization and is often vitally important in policy-making.

Case studies are widely used in teaching business and management, but they can be important in business research as well. By

concentrating intensively on one firm or on one particular situation, the researcher can obtain many more details than would be possible with a large sample or a total population. If the firm or situation is very similar to other companies or situations, a well-designed case study can have great value in helping to solve business problems or to avoid such problems in the first place. For example, suppose that the case being studied involved an anti-trust suit. The researcher would try to learn what gave rise to the problem, what sort of behavior was found to be illegal, who was involved, who was responsible for the illegal acts, how the court decided the question, and so on. Others in similar situations could then study the case, examine their own behavior and policies, and modify their policies and procedures to avoid a similar problem.

The weakness of the case study method is that it deals with only one situation or company, and thus it might not be valid to form generalizations on the basis of this very limited sample. It might also be difficult for the researcher to obtain access to all of the relevant files and records of the firms and individuals involved in the case.

Historical research can do much more than determine what happened in the past. The historian might identify patterns and trends that can be very useful to the institution today. Indeed, trend analysis is important in many business situations. Patterns of change over various periods of time can be noted and can provide clues as to future developments. Are sales rising or falling?

Has productivity been increasing or decreasing? What has been happening to prices? To obtain answers, the researcher might need to examine the records and files of the firm going back many months or even years. Management should also be interested in broader problems, such as how the industry is affected by the business cycle (the periodic ups and downs in the economy as a whole), by technological developments, and by political and social changes. When the economy went into a slump, did the industry decline, or did it "weather the storm"? If the historian concluded that the industry always suffered whenever a recession occurred, management might try to be prepared for future slumps by doing such things as adding new lines -- products or services of a type that are in demand in bad times as well as in good times.

Historical research can help us to understand current situations. (The term generic study is sometimes used to describe historical research that is designed to help us understand the present.) Our current banking system, for example, makes little sense to most people. A study of the history of money and banking in America, however, helps to explain the nature of our system. Those who deal with workers and unions from management's side of the table will have a much better understanding of the feelings and concerns of employees and their organizations if they know the history of labor and of the trade union movement. A firm involved in an anti-trust suit would do well to study the historical development of the anti-trust laws and of the cases pertaining to them. Historical precedent can be very important in court decisions.

Philosophical inquiry and policy analysis may not be considered types of research, but they are areas that ought to be of great interest to business people. Philosophical inquiry can deal with questions of values and ethics in business, using some of the research techniques discussed earlier. For example, how do people view profits? One leading American economist asserts that it is the duty of management to maximize profits so that the owners of the firm will realize greater incomes or so that money can be re-invested in the company in the hope of yielding even greater returns in the future. An equally well-known economist insists that business has a moral obligation to help solve such social problems as poverty and disease, even if this means lower returns for the owners. Which view is "right"? There is no objective way of answering this question. However, each economist would insist that in the long run his approach would result in the best allocation of wealth and income for the people. In any event, research can help to identify the value positions that underlie business and public policy-making.

Survey research can be used to find out what value positions various people hold (or say they hold), and even whether or not they are consistent. For example, a business manager might state that he opposes government interference in the economy and government efforts to regulate or control business activities. As a consumer, however, he might favor legislation to protect consumers from dangerous or harmful products. Research can also determine whether or not actual behavior and business procedures reflect the

values expressed by business leaders. Thus, business executives may steadfastly assert their belief in competition, but may secretly engage in collusion that has the effect of destroying real competition, seek various kinds of government subsidies, or favor protective tariffs that reduce competition from abroad.

By knowing how the public tends to feel about value issues, business leaders can establish policies that would be consistent with those feelings. A firm might want to change its image, take a different approach to advertising its product, find better ways of dealing with its workers, or even revise its managerial structure. Business ethics is a subject receiving considerable attention today, and research is needed to determine what ethical principles apply to business, the extent to which those principles are adhered to, and what problems arise relating to them.

In analyzing business policies, researchers might attempt to answer questions like the following:

- What are the goals and objectives of the firm?
- Who establishes the goals and objectives?
- Who establishes policy? How?
- What is the firm's power structure? Who really makes the decisions?
- What changes have taken place in the firm's goals and policies over the years? How and why have these changes occurred?
- Are there unwritten as well as written policies? If so, what are they, who made them, and how do they work?
- What strategies has the firm adopted to carry out policy?
- How effective have the strategies been?
- What problems are there that relate to the policies?
- How are the problems being handled?
- How are the firm's policies affected by public policies?
- How are they affected by the policies of other firms?
- How are they affected by business organizations, such as the National Association of Manufacturers or the Better Business Bureau?

- In addition to overall policies, are there policies for all appropriate activities, such as planning, organizing, staffing, directing, and controlling?
- What are the policies pertaining to sales, production, finance, personnel relations, public relations?
- Are there conflicts between policies -- do the policies of one division conflict with those of another? If so, how and why?
- In a multi-plant firm, do all plants follow the same policies? If not, how and why do they differ? What effects, if any, do these differences have on the firm?
- What procedures are there for evaluating the effectiveness of policies?

In addition to broad general policies, there are often policies for very specific things such as "coffee-breaks" for the workers, methods of dealing with vendors with whom the firm deals, work rules in a given part of a plant, and so on. Policies provide the guidelines for research and evaluation. Is a given policy achieving what it is supposed to achieve? How effective is the policy? Do the benefits outweigh the costs? A great deal of research, then, can be related to the analysis and evaluation of policy. A simple framework for policy analysis follows:

1. What is the basic or underlying problem?
2. What aims or objectives are we trying to achieve in dealing with the problem?
3. What are some alternative courses of action?
4. What are the probable consequences of each course of action?
5. What will be the cost of each course of action? (This must involve more than money costs. What are the "trade-offs"? What must we sacrifice if we choose Plan "A" instead of Plan "B". What will it cost in terms of time, physical resources, human resources, good will, etc.?)
6. Which course is apt to provide the greatest benefit?
7. Which course should be adopt?
8. How can we evaluate our choice. Did it work? Was it the right decision?

For a somewhat technical and mathematical set of models useful in analyzing policy, see the book A Primer for Policy Analysis by Edith Stokey and Richard Zeckhauser (New York: W. W. Norton, 1978).

Comparison studies may range from very broad descriptive and analytical examinations of business situations in two or more nations to narrow studies of two firms in a given industry or even of two plants or divisions withi a firm. In recent years there has been great interest in comparing Japanese management techniques and philosophies with those of the United States, for example. One popular book on this subject is William G. Ouchi's Theory Z: How American Business Can Meet the Japanese Challenge (Reading, Mass.: Addison-Wesley, 1981). American production methods have also been compared with those found in other industrial nations, such as West Germany. These studies usually go beyond a mere description of the methods used in both countries and attempt to identify reasons why productivity is greater in one, why one is growing while the other is lagging, or why one is capturing a larger share of the world market. It is important in studies of this type for the business researcher to be aware of cultural, sociological, psychological, political, and historical factors that may help to explain differences. Thus, although several of the research techniques described above can be used (ex post facto designs, in particular), an interdisciplinary approach is needed, and the business researcher ought to call upon experts in other disciplines to help design, carry out, and interpret the study.

Narrower comparison studies might involve such things as trying to find out why one firm in an industry is thriving while another is failing, why one plant has labor problems while others do not, or why one policy works well while another fails.

There are other types of research, but this short list will suffice to show the student some of the more common approaches. Indeed there is even research on research -- studies designed to measure the effectiveness of various research methods, of statistical techniques, or of tests used in research. This type, however, is best left to the professional researcher.

A Model for Approaching a Research Problem

In this section we present a relatively simple way of preparing and conducting a research project. One need not use all of these steps in every research project. The researcher must use his or her judgment in deciding which ones are necessary in a given situation, but some steps must be used in every case. Steps 1, 6, 7, 8, 9, and 10 are imperatives. Others are desirable in almost any project, and necessary in some. Each step is now briefly explained and illustrated by an imaginary situation.

Step 1: Identify and Define the Problem. What is the problem? The problem must be stated in terms that will be clear to all interested persons. It is a mistake to state a problem in very broad terms, such as: "How can management be made more realistic?" This is much too general to provide the basis for a manageable research project. It would be impossible to do research on all management, and the term "realistic" is practically meaningless. A better statement is: "How can the productivity (output per hour of work) of assembly-line workers in Plant A of the XYZ Corporation be increased?" All key terms must be defined as soon as they are introduced. In this example, "assembly-line workers" must

be clearly defined so that there can be no mistake about which group of workers we mean. Other key terms that might appear throughout the research plan are productivity, support personnel, supervisory personnel, equipment, worker morale, on-the-job training, experimental group, and control group.

Step 2: Explain the Significance of the problem. The importance of the problem suggested in Step 1 (regarding worker productivity) would probably be self-evident, but the researcher should provide at least a brief explanation anyway. Perhaps productivity has been declining in Plant A while it has been steady or rising in other plants producing the same product. Some fact-finding research might be needed at this point, because the evidence that productivity is indeed poor in Plant A ought to be presented. Furthermore, the effects of this decline on the firm's profits and on its competitive position in the industry should be noted.

Step 3: Set Forth the Purposes of the Study. The researcher must indicate exactly what the study is expected to achieve. In the case of the productivity problem, the purposes might be to identify the probable causes of the problem and some possible solutions. The limitations of the study can also be noted at this point. For example, the study will deal only with the productivity of assembly-line workers in Plant A, and not with that of clerks, other classes of workers,

or other support personnel.

Step 4: Examine Related Literature. This step is considered very important in doctoral and masters degree theses. The researcher ought to find out what others have done in this field (or what others are now doing). This can provide clues as to what the researcher can expect to find and may suggest research methods and statistical techniques. It can also help the researcher to avoid mistakes made by others, or to avoid (or cope with) problems encountered by others. The researcher can write a review of the related literature and should show how and why his or her study differs from the others. (Simply replicating a study done by someone else has value, but it may not be acceptable for a doctoral or masters thesis. An original project that promises to contribute new knowledge to the field is more likely to be supported, unless the researcher can show that there are good reasons to question the validity of another study.)

Step 5: Formulate Hypotheses. Research hypotheses are guesses as to what possible causes and solutions will be found. Although they may be based simply on hunches, hypotheses based upon research done by others or on preliminary investigation of the problem at hand provide a more solid base for the study. The hypotheses will guide the researcher throughout the project, for they will determine the types of data to be collected and the types of questions to be answered. In any event, it is extremely important for the

researcher to test the hypotheses as objectively and as scientifically as possible. The good researcher does not attempt to "prove" that the guesses or hypotheses were correct -- he or she subjects those hypotheses to the most rigorous tests possible before deciding to accept them, totally reject them, or accept them with modifications.

Step 6: Decide on the Type of Information Needed. What facts are needed, and what must be done to draw meaningful conclusions from those facts? Care must be taken not to overlook any important set of facts, but "information overload" is also to be avoided. In the early stages of a project the researcher is often inundated with facts and must decide which data to retain and which to discard. When in doubt, it is best to retain the information. Appropriate statistical analysis can help the researcher to decide which variables are significant and which are not.

Step 7: Decide on the Methods to be Used in Gathering the Data and in Analyzing It.

In the productivity problem, several methods might be employed. For example, the researcher might first examine published reports of similar studies to see how others have approached the problem, then begin to examine the firm's records for possible clues or for background information. He or she might then decide to do an ex post facto study in an attempt to identify the possible causes of the decline in productivity. Plant A might be compared with Plants B and C, the firm's other plants producing the same product and

using similar production techniques.

Assume that the researcher finds several possible causes of the problem -- the rate of breakdows in the equipment, flaws in the raw material being used, the ages of the workers, worker morale, and the formal training received by the workers. Let us say that a careful comparison of plant records shows that there is no significant difference in the rate of equipment failures, that the raw material is of the same quality in each plant, and that the workers all belong to the same age group. These findings might be based upon existing data obtained from the plant records, after the data have been subjected to the appropriate statistical analyses.

Finding no information on worker morale, the researcher decides to design a study to learn if the workers in Plant A are as happy with their jobs as those in Plants B and C. Assume that no significant differences are found -- the Plant A workers are just as satisfied (or as unsatisfied) with company policy, with working conditions, with their wages, etc., as their colleagues in B and C. It is found, however, that workers in B and C receive formal training before being put on the production line, while those in A are expected to learn "on the job." It may now be concluded that this difference in training is the probable cause of the productivity problem because the untrained workers can not cope with changes in production techniques, can not increase their output when the work load becomes heavier, and can not assume responsibility for minor assembly-line prob-

lems. This conclusion may satisfy the firm's management so that the necessary corrective action can be taken.

On the other hand, management might be skeptical. Perhaps the training is a costly process, or perhaps an important executive has a bias toward on-the-job training. Before undertaking the investment necessary to establish a full-scale training program in Plant A, management wants further evidence that the benefits will outweigh the costs. The researcher must now set up a controlled experiment to test the hypothesis that formal training will significantly increase the output of workers in Plant A. (Actually, a quasi-experimental design would probably be used in this example.) Suppose that there are four production lines in the plant, each in a different wing of the building. The productivity of all four is carefully measured, and it is found that there is no significant difference among them. The researcher then randomly assigns two of the lines to the experimental or "treatment" group, while the other two will serve as controls. Workers in the experimental groups receive a special two-week training program, while those in the control groups continue to work without such training. The productivity of the experimental and control groups is then compared to see if there is now a difference. If output per worker rises significantly in the experimental groups, but does not rise at all or not as much in the control groups (and if statistical analysis shows that the differences were too great to be the result of chance or of an error in sampling), it will be con-

cluded that the research hypothesis is upheld.

Step 8: Carry Out the Research Plan. The researcher now does what was planned during the earlier steps, and in our discussion of Step 7 we have given examples of some of the data-gathering activities. Although the researcher should attempt to adhere to the plan as much as possible, things do not always go according to plan. Thus, the good researcher must be ready to "shift gears," to consider adding new types of data, to change the research methods, and so on. One of the fascinating things about doing research is that the unexpected often happens. Factors (or "variables") that the researcher had not considered may pop up and need to be taken into account. For instance, the researcher might find that supervisors in Plant A were not assigning workers in the same way as supervisors in B and C. This discovery may call for a revision in the original research design. Indeed, it often happens that one particular variable does not fully explain the variation in output. Two or more variables may be important, or it may even be that the interaction between or among two or more variables best explains the variation. In short, the real-life research situation is rarely as simple and as clear-cut as we have indicated in this brief outline. In our productivity problem, the researcher might find that it was the lack of formal training combined with an inefficient allocation of workers that caused the problem. (Actually, we ought to say that probably or possibly caused the problem. Absolute proof in this type of research is hard to establish.)

In carrying out the plan, the researcher must also look for any possible weaknesses that become evident in the research design, the data-collection methods, or the statistical techniques employed. For example, perhaps only half of the workers in the firm returned the questionnaires that were designed to ascertain their attitudes toward their jobs and toward the firm. Perhaps there were difficulties in exercising tight control over the experimental phase of the project. For instance, the workers in the experimental group might have shared some of their learnings with friends in the control groups. If these problems cannot be overcome, the research should be sure to note them in the final report so that others will be aware of the weaknesses in the study. (Never fail to identify the weaknesses in your own work -- if you don't, someone else will!)

Step 9: Compile the Data and Analyze the Findings. All the information must be gathered and recorded in a systematic and clear way, and in a manner that will make it easy to do the necessary analyses. The researcher should check and recheck to be sure that no errors have crept in. A column of figures added by one person should be added again by a second or third. Suitable forms should be developed to record the statistical data so that no confusion will occur when the data are to be processed. It is often useful to use color codes. For example, a pre-test might be printed on blue paper while the post-test is printed on pink paper. When manually listing figures in columns, use different colored ink for

the different columns. Even when computers or electronic calculators are used for processing data, it is possible for serious errors to occur. If possible, have some sort of cross-checking procedure incorporated into the computer program so that errors will be detected.

In selecting the type of statistical techniques to be used in analyzing the data, be sure to consider every method that could be appropriate. Consult a statistician who has an up-to-date knowledge of developments in the field of statistics. This ought to have been done during the process of designing the research project, but it sometimes happens that the technique originally planned proves to be less appropriate than some other technique after the data have been collected and examined. Even the experienced researcher who is well versed in statistics can benefit by getting the opinions of other experts on research methods and statistics.

Step 10: Interpret the Results and Draw Conclusions. Was the research hypothesis upheld, or did it prove to be untenable? Here, the researcher must be prepared to accept an outcome that was not expected or not desired. One's "pet theory" may be overthrown, and one's biases or prejudices may be shattered. So be it. The good researcher will report the findings honestly and objectively, and will never try to manipulate the data to support some preconceived notion. A certain amount of hedging is often necessary at this point. For example, if the researcher concluded that lack of formal training was the

probable cause of poor productivity on the part of Plant A's workers, he or she should also recognize that other variables might have accounted for the problem. This is particularly important when variables that are hard to measure (such as motivation) are probably present.

Any assumptions made by the researcher must be stated clearly. Because in most research one uses a sample instead of the entire target population, one must always note the possibility that the sample did not adequately represent the total population from which it was drawn. Indeed, a different sampling procedure might have yielded different results, and the size of the sample might have been inadequate. (By increasing the size of the sample one can sometimes obtain a result that is statistically significant, after the analysis of the smaller sample showed no significant difference.) If a change in the situation, in the research methods employed, or in the statistical techniques used might have yielded different results, this ought to be stated.

It is even possible that the project will be a "failure," in the sense that it does not identify possible causes or lead to solutions of the problem. This does not mean that the study was a waste of time and resources, however, for it can still provide useful information when one designs a new study to tackle the problem again. (Patience and persistence are very important characteristics for the researcher to have. Even in the so-called "hard sciences" researchers often fail hundreds of times before finding the answer to a question or solving

a problem.) Indeed, one important outcome of almost any research project is the identification of the need for further research! In finding the answer to one question or problem, the researcher frequently discovers other questions and problems that require further study.

Step 11: Write a Report and Make Recommendations. The nature of the written report depends upon the intended audience or audiences. Management might simply be interested in the "bottom line" results and not want to read all the details of how the research was conducted. Other researchers will want to know exactly how the project was carried out, and they will probably want to see detailed statistical data. It is possible to satisfy both groups in one report. A brief summary can be presented at the beginning, and this is perhaps all that management will want to see. Other researchers will welcome the brief summary, but they will want "all the gory details" as well. For the latter group, there should be enough detail to enable them to replicate the study, to evaluate your procedures, and perhaps even to check your statistical computations and results.

As for recommendations, some managers might want the researcher to report the findings and let management decide what to do with them. Others may want suggestions for actions and policies based upon the results. These suggestions will not always be followed, however. For example, a researcher once found that business students

being taught economics by the use of computerized simulations learned more than students being taught by the conventional lecture-discussion approach. The college administration, however, felt that the average gain in scores on a standardized economics test was not high enough to justify the expense of the computer simulations. For more detailed advice, see some of the books listed in the section "Writing Research Reports" in the bibliography. Charles B. Smith's A Guide to Business Research: Developing, Conducting, and Writing Research Projects (Chicago: Nelson-Hall, 1981) is recommended.

Step 12: Prepare a Follow-Up Study. This step ought to be included whenever the researcher's findings result in important changes in policy and procedure. For example, if the manager of Plant A did indeed establish a training program for production workers, a follow-up study could be made to see if this solved the productivity problem over the long run. The experiment that seemed to establish the superiority of trained workers over untrained workers was a short-run phenomenon. Furthermore, the positive result might have been because of the Hawthorne effect. (That is, the superior performance by the experimental groups might have occurred because they knew they were part of an experiment, not because of the training as such.) A follow-up study would show whether or not the training had a lasting impact.

Some of the steps described in this section could be divided into

two or more narrower categories, and some might be combined to form broader categories. Thus, there is an arbitrary quality to this list of steps as presented in this guide. Nevertheless, it should prove useful to the student being introduced to research methods. For a different but similar model see Vernon Clover and Howard Balsley, Business Research Methods, 3rd ed. (Columbus, Ohio: Grid Publishing, Inc., 1984), pp. 29-34.

Prerequisites for the Study of Business Research Methods

This guide is intended for the use of students doing upper level work, or students in graduate programs. A lower-division student who is very highly motivated and who has had life experience that provided good background in business or in research might also use the guide and study business research methods, however.

The student ought to have studied basic statistics before studying business research methods. If the student has not studied statistics, he or she must do so either before tackling business research methods or while doing so. The basics can be learned through the use of the programmed self-study text Business Statistics: A Self-Teaching Guide, 2nd ed., by Donald J. Koosis (New York: John Wiley & Sons, 1978). The student who has studied college algebra will feel more comfortable than the one who has had no college mathematics, but one does not need highly developed math skills to learn introductory statistics. Indeed, if the student has a pocket calculator that will do square

roots it will be possible for him or her to do the necessary computations. The computations are sometimes long and tedious, but they do not require a knowledge of advanced mathematics.

An understanding of what one can and cannot do with statistics is more important than facility in computation. Thus, in studying statistics the student should strive to understand the rationale behind each major concept. There is no need to memorize formulas, because one can always look them up in any standard statistics text book.

Most statistics texts include some information on research design, for they usually illustrate the ways in which the statistical concepts can be used by including simple research problems. As the student goes through the statistics text, he or she should attempt to think of situations in which the statistical techniques can be used. Whether the student is employed in government, in a not-for-profit institution, or in a private business firm, he or she should be able to identify many problems that could be the subjects of research. The student who is not employed ought to be able to think of public policy issues or of situations in his or her personal life that might call for research. Some examples are as follows:

- New York City increases the subway fare. What is the effect on the number of riders? What is the effect on the revenues (income) obtained from the fares? What is the effect on the type of transportation that people use in the City?

- A small city imposes a sales tax. How are families in different income groups affected? How does the tax affect the buying habits of the residents? How are local business firms affected?

- A home-owner intalls a new heating system in her house. She wants to find out if the new system decreases her fuel consumption. She keeps records of fuel consumed for at least a year after the new system is installed. She compares monthly fuel usage of the new system with monthly usage of the old system, makes adjustments for differences in average monthly temperatures, and uses a statistical technique to determine whether or not any observed differences are significant.

The student might not be able to carry out these studies, but simply by thinking of possible research uses for the statistical techniques the student will acquire a better understanding of them.

Required Readings and Recommended Supplements

The basic text should be C. William Emory's Business Research Methods, rev. ed. (Homewood, Illinois: Richard D. Irwin, Inc., 1980). The text is 488 pages long, plus appendices and an index.

An acceptable alternative is Business Research Methods, 3rd ed., by Vernon T. Clover and Howard L. Balsley (Columbus, Ohio: Grid Publishing, Inc., 1984). This text is 372 pages long, plus appendices and an index. This book is recommended for students who have strong backgrounds in statistics.

The student who may be involved in planning, conducting, or supervising research in the future is advised to obtain both books, because they would be valuable as reference works or guides. Depending upon the level and the amount of credit involved in a course or student-learning contract, the instructor (mentor) might want to assign both books or selected portions of both.

Many of the works listed in the bibliography could be used to supplement the basic text, to provide additional information, to enable the student to learn more about a particular type of research that might be of interest (such as marketing research), or to plan a specific kind of project (such as an attitude survey). The following items, selected from the bibliography, are strongly recommended as supplements that could be used by almost anyone using this study guide or studying business research methods independently.

Buckley, John W., et. al., Research Methodology and Business Decisions (National Association of Accountants, 1976).

Madsen, David, Successful Dissertations and Theses: A Guide to Graduate Student Research from Proposal to Completion (San Francisco: Jossey-Bass, Inc., 1983).

Murdick, Robert G., and Cooper, Donald R., Business Research: Concepts and Guides (Columbus, Ohio: Grid Publishing, Inc., 1982).

Resta, Paul A., The Research Report (New York: American Book Company, 1972). (A self-instruction manual on writing reports.)

Shurter, Robert L., et. al., Business Research and Report Writing (New York: McGraw-Hill, 1965).

Smith, Charles B., A Guide to Business Research: Developing, Conducting, and Writing Research Projects (Chicago: Nelson-Hall, 1981).

Spector, Paul E., Research Designs (Beverly Hills, Calif.: Sage Publications, 1981). (An 80-page pamphlet.)

Turabian, Kate L., Student's Guide for Writing College Papers, 2nd ed. (Chicago: The University of Chicago Press, 1969).

During their study of business research methods, students should also attempt to read professional journals that contain reports

of research, obtain copies of unpublished reports (if possible), and be alert for research findings reported in newspapers, news magazines, or in the professional literature. In reading these items, the student should look for evidence of the methods used, the statistical techniques employed in analyzing the data, and any possible weaknesses in the research design. That is, the student should learn from them, but should also read them with a critical eye. Finally, the learnings the student acquires in the study of business research methods should serve as analytical tools and as skills that will be used again and again as he or she writes term papers, plans a thesis or project for the graduate degree, or goes on to engage in research activities in a real-life setting.

Ideas for Learning Activities

As they read the assigned text (or texts), students should constantly as themselves: "How can I apply these concepts to questions and problems in my own field or to situations in which I am interested?" Thus, by personalizing the material the students will be more apt to "internalize" the principles.

At the end of each chapter in the two recommended texts there are exercises or questions based upon the chapter material. The student ought to attempt to do the exercises or answer the questions. If he or she encounters difficulty, it will be necessary to review the chapter in an effort to overcome the problem. If all else fails, the student should contact the instructor (or mentor), or obtain help from a resource person. The instructor

(or mentor) may also wish to assign some of the exercises and questions, requiring the student to provide written responses or to be prepared to discuss the items during meetings. One of the best ways of proving that you have learned something is to show that you can explain it to someone else.

If possible, groups of students in the same area might arrange to have meetings during which they will discuss their study of research. By sharing their problems, observations, thoughts, and understandings, students can learn from one another.

Students should consider joining a professional society. Those interested in economics, for example, can obtain student memberships in the American Economic Association, the Eastern Economic Association, or another regional society. The dues are usually lower for students, but they receive the journals and can attend the meetings. It should be enlightening for the student to attend sessions at which scholars report their research findings and obtain the critical reactions of their colleagues.

The graduate student ought to be thinking ahead to the day when he or she will begin work on a thesis or other project required for the graduate degree. If the student can decide on a topic or problem now, it might be possible to apply the learnings acquired during this study directly to that topic or problem.

All students should be able to design a research project by the time they complete this study. The student should be prepared to develop two or more research designs, showing an ability

to employ two or more of the methods or designs described in the texts. In some cases, students might actually carry out a research project. Indeed, many undergraduate students at Empire State College have done this for learning contracts in research methods and statistics. The number of possible research problems and topics is infinite. However, a few suggestions should suffice to give the student ideas of what might be done. The items starred (*) represent projects actually developed and carried out by Empire State College students.

- *Ms. S. is the manager of a small theater that specializes in showing foreign films. She believes that these films appeal largely to well-educated people who appreciate such things as art, music, and literature. So that she can plan how and where to advertise her programs, and so that she will know what types of films to obtain, she decides to conduct a survey. Design a study that would help her become better informed about her clientele.

- *Mr. K. is in a middle-management position with a large commuter railroad. In examining monthly reports of the failures of certain types of equipment, he thinks he sees a pattern -- failures seem to be greater during those months when the weather is often bad. Records of equipment failures and of weather conditions are available, going back several years. How would you analyze the available data to decide whether or not his hunch about the relationship between the weather and equipment failures is tenable? (Obviously, this calls for an ex post facto design.)

- *Mrs. M. is the Director of Training for a large bank. One of the courses taught in her department is designed to prepare new employees to be bookkeepers. She hopes to save money by having the students use a programmed self-study text in bookkeeping, but she is not sure that it will be as effective as the conventional (but more expensive) teacher-conducted classroom method of instruction. Develop a research design that will enable Mrs. M. to decide which method of instruction is most effective in teaching new employees to be bookkeepers.

- *Mr. J. is in the advertising field. He wants to sell a device that looks like a small TV set. It is used to show film loops advertising certain products. The loops can run continuously during a store's open hours. Before investing a large sum in these devices, however, he wants to know if they would be effective in increasing the sales of the advertised products. He obtains ten of the devices and decides to try them in stores specializing in health foods. How could he design a research project to test the effectiveness of the devices?

- Mr. Dee, president of Dee Industries, hopes to increase productivity in his plants by putting on a campaign to alert the production workers of the need to increase their hourly output. The personnel manager warns him, however, that workers might not share his enthusiasm for productivity. Indeed, he fears that workers regard efforts to raise productivity as being a "speed-up" and that it will mean more work, with the fruits of their labor going to the stockholders in the form of higher profits. Mr. Dee hires a researcher to conduct a survey to find out what the workers feel about productivity. How might the research develop a project to answer Mr. Dee's question? (Although the name is fictional, this is based on an actual case. As it turned out, the personnel manager was right!)

- A manufacturer of soap has developed a new soap powder, which she plans to package in cardboard boxes. Thinking that sales might be affected by the color of the boxes, she instructs the marketing department to conduct a study to find out what color should be used. How might the marketing department plan and carry out this project?

- A firm that makes and sells household cleansers has been conducting consumer surveys to find out how consumers rate the effectiveness of the cleanser for certain household jobs. Management wants to know how accurate these surveys are as indicators of the cleanser's effectiveness. They decide to have scientific tests conducted under laboratory conditions and to compare the results with the results of the consumer surveys. Design a project that would answer management's questions.

- *Ms. C. is in a managerial position in a large auto driving school. She wants to know if she can predict the firm's revenues (income) on the basis of the utilization of the cars. That is, if she knows the total hours

of usage, can she make an accurate prediction of the firm's revenues? How could she design a study to answer her question? (Note that in this case she had to adjust for a change in the price that the firm charged its students. That is, she had to be sure to distinguish between a rise in revenue associated with greater car usage and a rise associated with an increase in the prices the firm charged the students.)

- The Ace Lighting Co. sells thousands of light bulbs every year. The bulbs are obtained from two manufacturers -- the Able Corp. and Baker's Bulbs. The director of consumer relations at Ace believes that more customer complaints are received about the bulbs manufactured by Able than about those produced by Baker. What sort of research design will show the management of Ace whether or not Able's bulbs really do burn out faster than Baker's?

- *Mrs. F. and her husband operate a small service-type business. Potential customers are contacted by telephone. Mr. F. hypothesizes that there will be more responses if the customers hear a female voice instead of a male voice. Suggest a simple research project to test this hypothesis. (This may not be as simple as it seems, because customer responses can be affected by many things other than the quality of the voice they hear. In this particular case, Mr. F's hypothesis was supported by the findings of the study.)

- *Mr. L. manages a retail establishment that sells air conditioners. Because space is a problem, he does not want to have an oversupply on hand; but he wants to be prepared to meet a surge in consumer demand. Otherwise, he will lose customers to his competitors. He believes that weather forecasts affect his sales -- reports of unusually hot weather bring customers to his store. He does not trust his subjective impressions, however. Develop a research design that could show him whether or not he can predict unusually high sales on the basis of weather reports.

- When they found that a foreign manufacturer was producing a similar product much more efficiently, a large American firm asked researchers to make a case study of the foreign firm. How might such a case study be made? As a result of the case study, the American firm concluded that the foreign firm's superiority was explained by their managerial policies toward their employees. For example, the foreign firm used "quality circles" -- a technique in which groups of workers meet with managers to discuss production problems, etc. The

American firm then decided to experiment with this approach. Design a study that would help the firm determine whether or not "quality circles" result in greater efficiency.

- A large bank is thinking of opening a branch office in a suburban community. It needs a great many facts about the area, such as the incomes of residents, the values of homes and business properties, the presence of competing banks, the transportation situation, the economic base of the area, population trends, etc. Prepare a study that would provide the bank with the relevant information it needs.

- A union, with the support of feminist groups, charges that women in a particular industry are the victims of discrimination. It is charged that women doing the same jobs as men do not receive comparable wages. The industry argues that the differentials can be explained by such things as seniority, differences in training, experience, and productivity. How would you develop a study to determine which side is "right"?

- *Mrs. G. is the public relations director for a large health care facility. Some members of the community see the institution as a nuisance; others see it as a boon to the community. Mrs. G. believes that both sides have merit, but she wants all the facts to be aired. She hires a researcher to study the impact of the institution on the community. How many jobs does it create, directly and indirectly? How much money does it put into the community? What services does it provide for the community? What costs does it impose on the community? (The costs must include "real costs" as well as obvious money costs, such as the fact that there are too few parking spaces in the area because of the presence of the facility, the noise made by workers arriving for the early morning shifts, and the like.) Outline a study to measure the impact of this institution on the community.

- The waterfront area in a large city has become a run-down eyesore. Civic leaders want to develop this area into a cultural, recreational, and educational mecca that will attract tourists as well as the resident population. They need to know what kinds of museums, theaters, concerts, and art galleries to build. Who will patronize these? Will the benefits exceed the costs? Similarly, they need to know what other recreational facilities people will want -- play grounds, skating rinks, swimming pools, etc. Will entrepreneurs be willing to establish gift shops, specialty stores, and restaurants there? What kinds of parking facilities will be needed? What sort of public

transportation will be required? Develop a study to answer some (or all) of these questions.

- A union argues that its members are receiving wages that are below the rates paid for comparable work elsewhere in the country. Management replies that the "cost of living" is lower in the region in question, and that workers' "real" wages (that is, the goods and services they can buy with their money wages) are thus just as high (or higher) than wages elsewhere when the "cost of living" is taken into account. What sort of research would determine who is "right"?

- Representatives of organized labor assert that workers in other countries are receiving lower wage rates than American workers producing the same products, and thus making it hard for American manufacturers to compete. An economist replies that the foreign workers receive better fringe benefits and therefore they are actually paid as much as (or more than) American workers. Plan a study to find out which argument is correct. (You might also consider the productivity of the American worker as compared with the foreign worker -- is the American's output per hour more or less than that of the foreign worker? Are there differences in unit labor costs? That is, when you consider the workers' output per hour along with the amount that the workers are paid each hour -- including such indirect payments as fringe benefits -- you may find that the industry paying the higher money wage actually has lower unit labor costs!)

BIBLIOGRAPHY

The purpose of this bibliography is to provide the user of the study guide with a sampling of the many books available as possible supplements to the basic text. It may prove to be useful to those who wish to go beyond an introductory study of research methods, to pursue research of a particular type, or to conduct actual research projects. It includes works that can strengthen the student's skills in statistics and mathematics -- essential tools for business researchers. Books on research methods in other fields are listed because the techniques employed by other disciplines are often useful in business research as well. The books are organized by categories so that the reader can more easily locate works of particular interest. Note, however, that some of the books could be placed in two or more of the categories.

Research Methods in Business and Economics

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Merrifield, D. B. Strategic Analysis, Selection, and Management of R & D Projects. New York: AMACOM, 1977.

Murdick, Robert G., and Cooper, Donald R. Business Research: Concepts and Guides. Columbus, Ohio: Grid Publishing Co., 1982. (207 pages)

Preston, Lee E. Research in Corporate Social Performance and Policy. New York: JAI Press, 1979.

Rigby, Paul H. Conceptual Foundations of Business Research. New York: John Wiley & Sons, 1965.

Ronstadt, Robert. The Art of Case Analysis: A Guide to the Diagnosis of Business Situations. 2nd ed. Dover, Mass.: Lord Publishing, 1980.

Ryan, J. Corboy. Management and Research Management: A Book of Excerpts & Articles. Huntington, New York: Robert E. Krieger Publishing Co., 1974. (404 pages)

Research Methods -- General

Ackoff, Russell. Scientific Method: Optimizing Applied Research Decisions. New York: John Wiley & Sons, 1962.

Campbell, Donald T.; and Stanley, Julian C. Experimental and Quasi-Experimental Designs for Research. Chicago: Rand McNally & Co., 1963. (84 pages)

Campbell, John P.; Daft, Richard L.; and Hulin, Charles L. What to Study: Generating and Developing Research Questions. Beverly Hills, Calif.: Sage Publications, 1982. (168 pages)

Cook, Tom, and Campbell, Donald T., Quasi-Experimentation: Design and Analysis for Field Settings. Chicago: Rand McNally, 1979.

Hakel, Milton D., et. al. Making It Happen: Designing Research with Implementation in Mind. Beverly Hills, Calif.: Sage Publications, 1982. (144 pages)

Helmer, Olaf. Looking Forward: A Guide to Futures Research. Beverly Hills, Calif.: Sage Publications, 1983. (376 pages)

Plutchik, Robert. Foundations of Experimental Research. 3rd ed. New York: Harper & Row, 1983. (253 pages)

Leedy, Paul D. How to Read Research and Understand It. New York: Macmillan, 1981.

Spector, Paul E. Research Designs. Beverly Hills, Calif.: Sage Publications, 1981. (80 pages)

Uhl, Norman P. Using Research for Strategic Planning. San Francisco: Jossey-Bass Publishers, 1983.

Cost-Benefit Analysis

Levin, Henry M. Cost-Effectiveness: A Primer. Beverly Hills, Calif.: Sage Publications, 1983. (168 pages)

Mishan, E. J. Cost-Benefit Analysis: An Informal Introduction. 3rd ed. New York: Praeger, 1976.

Oxenfeldt, Alfred R. Cost-Benefit Analysis for Executive Decision Making. New York: AMACOM, 1979. (432 pages)

Evaluation

Conner, Ross F., ed. Methodological Advances in Evaluation Research. Beverly Hills, Calif.: Sage Publications, 1981. (160 pages)

Cook, Thomas D., and Reichardt, Charles S., eds. Qualitative and Quantitative Methods in Evaluation Research. Beverly Hills, Calif.: Sage Publications,1979. (160 pages)

Helpman, Elhanan; Razin, Assaf; and Sadka, Efraim, eds. Social Policy Evaluation: An Economic Perspective. New York: Academic Press, 1983. (313 pages) (Includes cost-benefit analysis.)

Hinrichs, Harley H., and Taylor, Graeme M. Systematic Analysis: A Primer on Benefit Cost Analysis and Program Evaluation. Pacific Palisades, Calif.: Goodyear, 1972.

Hoole, F. W. Evaluation Research and Development Activities. Beverly Hills, Calif.: Sage Publications, 1978. (207 pages)

House, Ernest R. Evaluating With Validity. Beverly Hills, Calif.: Sage Publications, 1980. (296 pages) (Eight basic models.)

Lauffer, Armand. Assessment Tools for Practitioners, Managers, and Trainers. Beverly Hills, Calif.: Sage Publications, 1982. (192 pages)

Levine, Robert A., et. al. Evaluation Research and Practice: Comparative and International Perspectives. Beverly Hills, Calif.: Sage Publications, 1981. (256 pages) (Interaction between research and public policy in different nations.)

Nadler, David A. Feedback and Organization Development: Using Data-Based Methods. Reading, Mass.: Addison-Wesley, 1977.

Patton, Michael Q. Practical Evaluation. Beverly Hills, Calif.: Sage Publications, 1982. (320 pages) (Questionnaires; interviews; data collection; managing management information systems.)

_____. Qualitative Evaluation Methods. Beverly Hills, Calif.: Sage Publications, 1980. (348 pages)

Posavac, Emil, and Carey, Raymond. Program Evaluation: Methods and Case Studies. Englewood Cliffs, N.J.: Prentice-Hall, 1980.

Rossi, Peter H.; Freeman, Howard E.; and Wright, Sonia. Evaluation: A Systematic Approach. 2nd ed. Beverly Hills, Calif.: Sage Publications, 1982. (352 pages) (Social program evaluation for researchers and policy planners. Interdisciplinary. Includes cost-benefit techniques and case modules.)

Rothman, Jack. Using Research in Organizations: A Guide to Successful Application. Beverly Hills, Calif.: Sage Publications, 1980. (232 pages)

Rutman, Leonard. Planning Useful Evaluations: Evaluability Assessment. Beverly Hills, Calif.: Sage Publications, 1980. (208 pages)

Schulberg, H. C., and Jerrell, J. M., eds. The Evaluator and Management. Beverly Hills, Calif.: Sage Publications, 1979. (159 pages)

Smith, Nick. Metaphors for Evaluation: Sources of New Methods. Beverly Hills, Calif.: Sage Publications, 1981. (272 pages)

_____, ed. New Techniques for Evaluation. Beverly Hills, Calif.: Sage Publications, 1981. (320 pages)

Struening, Elmer L., and Brewer, Marilynn B., eds. Handbook of Evaluation Research. Beverly Hills, Calif.: Sage Publications, 1983. (448 pages)

Thompson, Mark. Benefit-Cost Analysis for Program Evaluation. Beverly Hills, Calif.: Sage Publications, 1980. (310 pages)

Historical Research Methods

Barzun, Jacques, and Graff, Henry F. The Modern Researcher. 3rd ed. New York: Harcourt Brace Jovanovich, 1977. (378 pages)

Clark, G. Kitson. Guide for Research Students Working on Historical Subjects. 2nd ed. New York: Cambridge University Press, 1968.

Shafer, Robert J., ed. A Guide to Historical Method. Rev. ed. Homewood, Ill.: Dorsey Press, 1974.

Marketing Research

Aaker, David A., and Day, George S. Marketing Research: Private and Public Sector Decisions. New York: John Wiley & Sons, 1980. (628 pages)

Banks, Seymour. Experimentation in Marketing. New York: McGraw-Hill, 1965.

Boyd, Harper W., Jr., and Westfall, Ralph. Marketing Research: Text and Cases. Homewood, Ill.: Richard D. Irwin, 1972. (813 pages)

Buzzell, Robert D.; Cox, Donald F.; and Brown, Rex V. Marketing Research and Information Systems. New York: McGraw-Hill, 1969.

Churchill, Gilbert A., Jr. Marketing Research: Methodological Foundations. 2nd ed. Hinsdale, Ill.: Dryden Press, 1979. (668 pages)

Cox, Eli P. Marketing Research: Information for Decision Making. New York: Harper & Row, 1979.

Green, Paul, and Tull, Donald. Research for Marketing Decisions. 4th ed. Englewood Cliffs, N.J.: Prentice-Hall, 1978.

Hughes, G. David. Attitude Measurement for Marketing Strategies. Glenview, Ill.: Scott, Foresman & Co., 1971.

Luck, David J.; Wales, Hugh G.; and Taylor; Donald A. Marketing Research. Englewood Cliffs, N.J.: Prentice-Hall, 1982.

Schoner, Bertram, and Uhl, Kenneth P. Marketing Research: A Short for Professionals. New York: John Wiley & Sons, 1976.

Social and Behavioral Research

Adams, Robert M.; Smelser, Neil J.; and Treiman, Donald J., eds. Behavioral and Social Research: A National Resource. Washington, D.C.: National Academy Press, 1982. (121 pages)

Dahl, Robert A.; Haire, Mason; and Lazarsfeld, Paul. Social Science Research on Business: Product and Potential. New York: Columbia University Press, 1959.

Diener, Edward, and Crandall, Rick. Ethics in Social and Behavioral Research. Chicago: University of Chicago, 1978.

Doby, John T. An Introduction to Social Research. New York: Appleton-Century-Crofts, 1967.

Freeman, Howard E., and Sherwood, Clarence C. Social Research and Social Policy. Englewood Cliffs, N.J.: Prentice-Hall, 1970.

Kerlinger, Fred W. Foundations of Behavioral Research. 2nd ed. New York: Holt, Rinehart and Winston, 1973.

McCleary, Richard, et. al. Applied Time Series Analysis for the Social Sciences. Beverly Hills, Calif.: Sage Publications, 1980. (322 pages)

Miller, Delbert C. Handbook of Research Design and Social Measurement. 4th ed. New York: David McKay, Inc., 1983.

Phillips, Bernard S. Social Research Strategy and Tactics. 2nd ed. New York: Macmillan, 1971.

Random, Matthew. The Social Scientist in American Industry. New Brunswick, N.J.: Rutgers University Press, 1970.

Selltiz, Claire; Wrightsman, Lawrence S.; and Cook, Stuart W. Research Methods in Social Relations. 3rd ed. New York: Holt, Rinehart and Winston, 1976.

Sjoberg, Gideon, and Nett, Roger. A Methodology for Social Research. New York: Harper & Row, 1968.

Smith, H. W. Strategies of Social Research. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

Stone, Eugene. Research Methods in Organizational Behavior. Santa Monica, Calif.: Goodyear, 1978.

Studdert-Kennedy, Gerald. Evidence and Explanation in Social Science. Boston: Routledge & Kegan, 1978.

Webb, E. J.; Campbell, D. T.; Schwartz, R. D.; and Sechrest, L. Unobtrusive Measures: Nonreactive Research in the Social Sciences. Chicago: Rand McNally, 1966.

Weiss, Carol, ed. Using Social Research in Policy-Making. Lexington, Mass.: D. C. Heath, 1977.

Williamson, John B., et. al. The Research Craft: An Introduction to Social Research Methods. 2nd ed. Boston: Little Brown & Co., 1982. (434 pages)

Survey Research

Alwin, Duane F. Survey Design and Analysis: Current Issues. Beverly Hills, Calif.: Sage Publications, 1978. (160 pages)

Bailer, Barbara A., and Lanphier, C. Michael. Development of Survey Methods to Assess Survey Practices. Washington, D.C.: American Statistical Assn., 1978.

Erdos, Paul L. Professional Mail Surveys. New York: McGraw-Hill, 1970.

Frey, James H. Survey Research by Telephone. Beverly Hills, Calif: Sage Publications, 1983. (208 pages)

Kalton, Graham. Compensating for Missing Survey Data. Ann Arbor: Institute for Social Research, University of Michigan, 1983. (164 pages)

_____. Introduction to Survey Sampling. Beverly Hills, Calif.: Sage Publications, 1983. (96 pages)

Kish, Leslie. Survey Sampling. New York: John Wiley & Sons, 1965.

Public Affairs Dept., Chamber of Commerce. Surveys as Tools for Interpreting Business. Washington, D.C.: Chamber of Commerce, 1975.

Staff of the Survey Research Center of the Institute for Social Research. Interviewer's Manual. Rev. ed. Ann Arbor: University of Michigan, 1976. (145 pages)

Sudman, Seymour, and Bradburn, Norman M. Asking Questions: A Practical Guide to Questionnaire Design. San Francisco: Jossey-Bass, Inc., 1982.

Attitude and Opinion Research

Note: Although attitude and opinion research is often associated with marketing, it is becoming more common in other areas as well. There is growing interest in such topics as the attitudes of employees toward their jobs, toward the policies of their employer, and toward various political, social, and economic issues. Surveys of attitudes toward business, labor unions, government policies, etc., are becoming very common.

Crespi, Irving. Attitude Research. Chicago: American Marketing Assn., 1965.

Edwards, Allen L. Techniques of Attitude Scale Construction. New York: Appleton-Century-Crofts, 1957.

Haley, Russell I., ed. Attitude Research in Transition. Chicago: American Marketing Assn., 1972.

Hughes, G. David. Attitude Measurement for Marketing Strategies. Glenview, Ill.: Scott, Foresman & Co., 1971.

Lemon, Nigel. Attitudes and Their Measurement. New York: Halsted Press, 1974.

Lodge, Milton. Magnitude Scaling: Quantitative Measurement of Opinions. Beverly Hills, Calif.: Sage Publications, 1981. (85 pages)

Oppenheim, Abraham N. Questionnaire Design and Attitude Measurement. New York: Basic Books, 1966.

Shaw, Martin, and Wright, Jack M. Scales for the Measurement of Attitudes. New York: McGraw-Hill, 1967. (604 pages)

Miscellaneous Works Relating to Research

Note: These books do not seem to fit in any of the above categories but could be of interest to some researchers.

Emmert, Philip, and Brooks, William D., eds. Methods of Research

in Communication. Boston: Houghton Mifflin, 1970.

Fink, Arlene, and Kosecoff, Jacqueline. How to Evaluate Education Programs. Washington, D. C.: Capital Publications, 1980.

Johnston, Denis F., ed. Measurement of Subjective Phenomena. Washington, D. C.: U.S. Dept. of Commerce, 1981. (193 pages)

Krippendorff, Klaus. Content Analysis: An Introduction to Its Methodology. Beverly Hills, Calif.: Sage Publications, 1980. (192 pages)

Nagel, Stuart, and Neef, Marion. Legal Policy Analysis. Lexington, Mass.: Lexington Books, 1977.

_____, and _____, Operations Research Methods. Beverly Hills, Calif.: Sage Publications, 1980. (96 pages)

Pelz, Donald C., and Andrews, Frank M. Scientists in Organizations: Productive Climates for Research and Development. Rev. ed. Ann Arbor: Institute for Social Research, University of Michigan, 1976. (400 pages)

Stokey, Edith, and Zeckhauser, Richard. A Primer for Policy Analysis. New York: W. W. Norton, 1978. (356 pages) (Economic and mathematical models useful in policy research.)

Van de Ven, Andrew H., and Ferry, Diane L. Measuring and Assessing Organizations. New York: John Wiley & Sons, 1980. (552 pages)

Van Maanen, John, ed. Qualitative Methodology. Beverly Hills, Calif.: Sage Publications, 1983. (272 pages) (For organizational research.)

_____; Dabbs, James M.; and Faulkner, Robert R. Varieties of Qualitative Research. Beverly Hills, Calif.: Sage Publications, 1982. (168 pages) (For organizational research.)

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Mathematics

Note: Books of the following type may be useful for students who wish to review or improve their math knowledge and skills.

Bowen, Earl K. Mathematics: With Applications in Management and Economics. 3rd ed. Homewood, Ill.: Richard D. Irwin,1972. (687 pages)

Hadley, G., and Kemp, M. C. Finite Mathematics in Business and Economics. New York: American Elsevier Co., 1972. (521 pages)

Payne, Michael. Pre-Calculus Mathematics. Philadelphia: W. B. Saunders Co., 1977. (429 pages)

Rothenberg, Ronald I. Finite Mathematics: A Self-Teaching Guide. New York: John Wiley & Sons, 1980. (283 pages)

Shao, Stephen P. Mathematics and Quantitative Methods for Business and Economics. Cincinnati: South-Western, 1976. (608 pages)

Simmons, George G. Precalculus Mathematics in a Nutshell: Geometry, Algebra, Trigonometry. Los Altos, Calif.: William Kaufmann, Inc., 1981. (119 pages)

Williams, Donald R. Modern Mathematics for Business Decision-Making. Belmont, Calif.: Wadsworth Publishing Co., 1974. (513 pages)

Non-technical Books on Statistics

Note: These books are not statistics texts, and cannot be used in place of basic texts. Students may wish to read one or two of them before tackling a regular text, however, or may use them as supplements. The Campbell book is highly recommended. It is an informative and humorous introduction to the uses and abuses of statistics.

Campbell, Stephen K. Flaws and Fallacies in Statistical Thinking. Englewood Cliffs, N.J.: Prentice-Hall, 1974. (200 pages)

Fairley, William B., and Mosteller, Frederick, eds. Statistics for Public Policy. Reading, Mass.: Addison-Wesley, 1977.

Hooke, Robert. How to Tell the Liars From the Statisticians. New York: Dekker, 1983. (173 pages)

Huck, S. W.; Cormier, William; and Bounds, W. G. Reading Statistics and Research. New York: Harper & Row, 1974.

Jaeger, Richard. Statistics: A Spectator Sport. Beverly Hills, Calif.: Sage Publications, 1983. (352 pages) (Non-mathematical explanations of statistics.)

Reichard, Robert S. The Figure Finaglers. New York: McGraw-Hill, 1974. (274 pages) (Uses and mis-uses of statistics.)

_____, The Numbers Game. New York: McGraw-Hill, 1972. (Uses and abuses of managerial statistics.)

Zeisel, Hans. Say It With Figures: How to Make Figures Make Sense -- A Guide for Those Who Use and Read Statistics. Rev. ed. New York: Harper & Row, 1957. (257 pages)

Introductory Basic Statistics Texts

Anderson, David R.; Sweeney, Dennis J.; and Williams, Thomas A. Introduction to Statistics: An Applications Approach. St. Paul: West Publishing Co., 1981. (602 pages)

Box, George E. P.; Hunter, William G.; and Hunter, J. Stuart. Statistics for Experimenters: An Introduction to Design, Data Analysis, and Model Building. New York: John Wiley & Sons, 1978. (653 pages)

Clark, Charles T., and Schkade, Lawrence L. Statistical Analysis for Administrative Decisions. 4th ed. Cincinnati: South-Western Publishing Co., 1983. (704 pages)

Davies, Brinley, and Foad, John. Statistics for Economics: An Introductory Course. London: Heinemann Educational Books, 1977. (89 pages) (Although too short for a basic text, this book covers many of the concepts useful in business and economics.)

DeSanto, Carmine; Porreca, William; and Totoro, Michael. Statistics Through Problem Solving. 2nd ed. New York: Mathematical Alternatives, 1978. (266 pages) (Simple self-study text.)

Ehrenberg, A. S. C. A Primer in Data Reduction: An Introductory Statistics Textbook. New York: John Wiley & Sons, 1982. (305 pages)

Fitz-Gibbon, Carol T., and Morris, Lynn L. How to Calculate Statistics. Beverly Hills, Calif.: Sage Publications, 1978. (144 pages)

Frank, Harry. Introduction to Probability and Statistics: Concepts and Principles. New York: John Wiley & Sons, 1974. (432 pages)

Freund, John E., and Williams, Frank J. Elementary Business Statistics: The Modern Approach. Englewood Cliffs, N.J.: Prentice-Hall, 1972. (524 pages)

Greensted, C. S.; Jardine, A. K. S.; and Macfarlane, J. D. Essentials of Statistics in Marketing. New York: Halsted Press, 1974. (257 pages)

Heinze, David C. Fundamentals of Managerial Statistics. Cincinnati: South-Western Publishing Co., 1980. (456 pages)

Hey, John D. Statistics in Economics. London: Martin Robertson & Company Ltd., 1974. (422 pages)

Hoel, Paul G., and Jessen, Raymond J. Basic Statistics for Business and Economics. 3rd ed. New York: John Wiley & Sons, 1982. (629 pages)

Hu, Teh-wei. Econometrics: An Introductory Analysis. Baltimore: University Park Press, 1973. (172 pages)

Iman, Ronald L., and Conover, W. J. Modern Business Statistics. New York: John Wiley & Sons, 1983. (777 pages)

Kazmier, Leonard J. Statistical Analysis for Business and Economics. 2nd ed. New York: McGraw-Hill, 1973. (623 pages)

_____, Theory and Problems of Business Statistics. New York: McGraw-Hill, 1976. (357 pages) (Problems with solutions.)

Kimble, Gregory R. How to Use and Misuse Statistics. Englewood Cliffs, N.J.: Prentice-Hall, 1978. (290 pages)

Klugh, Henry E. Statistics: The Essentials for Research. 2nd ed. New York: John Wiley & Sons, 1974. (426 pages)

Kuebler, Roy R., and Smith, Harry. Statistics: A Beginning. New York: John Wiley & Sons, 1976. (320 pages)

Leach, Chris. Introduction to Statistics: A Nonparametric Approach for the Social Sciences. New York: John Wiley & Sons, 1979. (339 pages)

L'Esperance, Wilford L. Modern Statistics for Business and Economics. New York: Macmillan, 1971. (503 pages)

Malec, Michael. Essential Statistics for Social Research. New York: J. B. Lippincott, 1977.

Plane, Donald R., and Oppermann, Edward B. Statistics for Management Decisions. Red. ed. Plano, Texas: Business Publications, Inc., 1983. (688 pages)

Ross, Steven M. Introductory Statistics: A Conceptual Approach. Danville, Ill.: The Interstate Printers & Publishers, 1982. (391 pages)

Rowntree, Derek. Statistics Without Tears: A Primer for Non-Mathematicians. New York: Charles Scribner's Sons, 1981. (199 pages) (This is not a text, but it could help students to understand some important concepts found in the texts.)

Sanders, Donald H.; Murph, A. Franklin; and Eng, Robert J. Statistics: A Fresh Approach. New York: McGraw-Hill, 1976. (367 pages)

Stockton, John R.; and Clark, Charles T. Introduction to Business and Economic Statistics. 6th ed. Cincinnati: South-Western Publishing Co., 1980. (624 pages)

Thompson, Gerald E. Statistics for Decisions: An Elementary Introduction. Boston: Little, Brown & Co., 1972. (297 pages)

Van Matre, Joseph G., and Gilbreath, Glenn H. Statistics for Business and Economics. Rev. ed. Plano, Texas: Business Publications, Inc., 1983. (550 pages)

Wonnacott, Thomas H., and Wonnacott, Ronald J. Introductory Statistics for Business and Economics. 2nd ed. New York: John Wiley & Sons, 1977. (753 pages)

Wright, Sonia R. Quantitative Methods and Statistics: A Guide to Social Research. Beverly Hills, Calif.: Sage Publications, 1979. (172 pages)

Specialized Works in Statistics

Note: These books are listed for the benefit of those who might want to know more about particular statistical techniques or applications of statistics to particular situations.

*Achen, Christopher H. Interpreting and Using Regression. Beverly Hills, Calif.: Sage Publications, 1982. (87 pages) (Discusses one of the most important statistical tools used in business and economic research.)

Andrews, Frank M., et. al. A Guide for Selecting Statistical Techniques for Analysing Social Science Data. 2nd ed. Ann Arbor: Institute for Social Research, University of Michigan, 1981. (80 pages)

Balsley, Howard L. Quantitative Research Methods for Business and Economics. New York: Random House, 1970. (339 pages)

Chapman, Douglas G., and Schaufele, Ronald A. Elementary Probability Models and Statistical Inference. Waltham, Mass.: Ginn and Co., 1970. (358 pages)

Clark, Charles T., and Hunt, A. W. STATPAK -- Computerized Statistical Analysis. 2nd ed. Cincinnati: South-Western Publishing Co., 1977. (198 pages) (User guide and problem set.)

Dollar, C. M., and Jensen, R. J. Historians Guide to Statistics: Quantitative Analysis and Historical Research. New York: Holt, Rinehart and Winston, 1971.

Everitt, Brian. Cluster Analysis. 2nd ed. New York: Halsted Press, 1980. (136 pages) (How to group objects into classes.)

*Glenn, Norval D. Cohort Analysis. Beverly Hills, Calif.: Sage Publications, 1977. (72 pages) (Method for investigating changes in patterns of behavior of groups of individuals linked in some way.)

Karson, Marvin J. Multivariate Statistical Methods: An Introduction. Ames: Iowa State University Press, 1982. (307 pages)

Kerlinger, Fred N., and Pedhazur, Elazar J. Multiple Regression in Behavioral Research. New York: Holt, Rinehart and Winston, 1973. (534 pages)

*Kim, Jae-On, and Mueller, Charles W. Introduction to Factor Analysis: What It Is and How To Do It. Beverly Hills, Calif.: Sage Publications, 1978. (79 pages)

*Lewis-Beck, Michael S. Applied Regression: An Introduction. Beverly Hills, Calif.: Sage Publications, 1980. (79 pages)

*Lodge, Milton. Magnitude Scaling: Quantitative Measurement of Opinions. Beverly Hills, Calif.: Sage Publications, 1981. (85 pages)

Lunneborg, Clifford E., and Abbott, Robert D. Elementary Multivariate Analysis for the Behavioral Sciences: Applications of Basic Structure. New York: Elsevier, 1983. (522 pages)

Nie, Norman H., et. al. SPSS: Statistical Package for the Social Sciences. 2nd ed. New York: McGraw-Hill, 1975.

Selby, Peter H. Using Graphs and Tables: A Self-Teaching Guide. New York: John Wiley & Sons, 1979. (150 pages)

Srivastava, M. S., and Carter, E. M., eds. An Introduction to Applied Multivariate Statistics. New York: Elsevier, 1983. (400 pages)

*Wildt, Albert R., and Ahtola, Olli T. Analysis of Covariance. Beverly Hills, Calif.: Sage Publications, 1978. (93 pages)

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*The items starred are parts of the series Quantitative Applications in the Social Sciences published by Sage. Professional researchers might wish to obtain the entire series of over 35 booklets. Write Sage Publications, Box 5024, Beverly Hills, CA 90210, for details.

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Writing Guides and Style Manuals

Note: Every graduate student in business ought to have at least one general style manual (such as Turabian) and at least one writing guide pertaining to business or economics.

Berenson, Conrad, and Colton, Raymond. Research and Report Writing for Business and Economics. New York: Random House, 1971.

Brown, Leland. Effective Business Report Writing. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Coyle, William. Research Papers. 4th ed. Indianapolis: Odyssey Press and Bobbs Merrill, 1976.

Dawe, Jessamon. Writing Business and Economics Papers. Totowa, N.J.: Littlefield Adams, 1975.

Editorial Staff of the University of Chicago Press. The Chicago Manual of Style. 13th ed. Chicago: University of Chicago Press, 1982. (737 pages)

Ehrlich, Eugene, and Murphy, Daniel. Writing and Researching Term Papers and Reports. New York: Bantam, 1980. (149 pages)

Gorn, Janice L. Style Guide for Writers of Term Papers, Masters' Theses, Doctoral Dissertations. New York: Simon & Schuster, 1973. (107 pages)

Kahn, Gilbert, and Mulkerne, Donald. The Term Paper: Step by Step. New York: Doubleday, 1976.

Keithley, Erwin M., and Schreiner, Philip J. A Manual of Style for the Preparation of Papers and Reports -- Business and Management Applications. 3rd ed. Cincinnati: South-Western, 1980. (118 pages)

Koefud, Paul E. The Writing Requirements for Graduate Degrees. Englewood Cliffs, N.J.: Prentice-Hall, 1964.

Lewis, Philip V. Business Report Writing. Columbus, Ohio: Grid Publishing Co., 1978.

Madsen, David. Successful Dissertations and Theses: A Guide to Graduate Student Research from Proposal to Completion. San Francisco: Jossey-Bass, Inc., 1983.

Markman, Robert H.; Markman, Peter T.; and Waddell, Marie L. Ten Steps in Writing the Research Paper. 3rd ed. New York: Barron's Educational Series, 1982. (133 pages)

Monroe, Judson. Effective Research and Report Writing in Government. New York: McGraw-Hill, 1980. (289 pages)

Morris, Lynn L., and Fitz-Gibbons, Carol T. How to Present an Evaluation Report. Beverly Hills, Calif.: Sage Publications, 1978. (80 pages)

Morse, Lawrence B. Writing the Economics Paper. Woodbury, New York: Barron's Educational Series, 1981. (160 pages)

Officer, Lawrence H.; Saks, Daniel H.; and Saks, Judith A. So You Have to Write an Economics Term Paper... East Lansing: Michigan State University, 1980. (149 pages) (Includes samples of student papers.)

Resta, Paul A. The Research Report. New York: American Book Co, 1972. (Self-instruction manual on writing reports.)

Shurter, Robert L., et. al. Business Research and Report Writing. New York: McGraw-Hill, 1965.

Smith, Charles B. A Guide to Business Research: Developing, Conducting, and Writing Research Projects. Chicago: Nelson-Hall, 1981. (190 pages)

Strunk, William, Jr., and White, E. G. The Elements of Style. 3rd ed. New York: Macmillan, 1979. (92 pages)

Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. 4th ed. Chicago: University of Chicago Press, 1973. (216 pages)

_____, Student's Guide for Writing College Papers. 3rd ed. Chicago: University of Chicago Press,1976. (256 pages)

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Abstracts, Indexes, Guides and Bibliographies

Note: The items listed here should be useful in helping those doing business research locate sources of information. Attempt to obtain the most recent edition from your library.

Accountants' Index. New York: American Institute of Certified Public Accountants.

American Statistics Index: A Comprehensive Guide and Index to the Statistical Publications of the U.S. Government. Washington, D. C.: Congressional Information Service.

Bibliography of Publications of University Bureaus of Business and Economic Research. Business Research Division, University of Colorado.

Business Books in Print. New York: R. R. Bowker Company.

Business Periodicals Index. New York: H. W. Wilson.

Coman, Edwin T. Sources of Business Information. Englewood Cliffs, N.J.: Prentice-Hall.

Daniells, Lorna M. Business Information Sources. Berkeley: University of California Press.

Encyclopedia of Business Information Sources. Detroit: Gale Research Company.

Executive's Guide to Information Sources. Detroit: Gale Research Company.

Funk and Scott Index of Corporations & Industries. Cleveland, Ohio: Predicasts, Inc.

Funk and Scott Index International. Cleveland, Ohio: Predicasts, Inc.

Grant, Mary M., and Cote, Norma, eds. Directoryof Business and Financial Services. New York: Special Libraries Association.

Johnson, H. Webster; Maier, Ernie L.; and Faria, Anthony J. How to Use the Business Library -- With Sources of Information. Cincinnati: South-Western Publishing Co.

Management Contents. Skokie, Ill.: G. D. Searle & Co. (Lists the contents of about 150 business journals.)

Marketing Information Guide. Garden City, N.Y.: Hole Communications, Inc.

Personnel Management Abstracts. Ann Arbor: Graduate School of Business, University of Michigan.

Readers' Guide to Periodical Literature. New York: H. W. Wilson.

SIE Guide to Business and Investment Books. New York: Select Information Exchanges.

Social Sciences Index. New York: H. W. Wilson.

U.S. Dept. of Commerce. Business Service Checklist. Washington, D.C.: U.S. Government Printing Office. (Weekly)

_____. United States Department of Commerce Publications. Washington, D.C.: U.S. Government Printing Office.

Vernon, K. D., ed. Use of Management and Business Literature. London and Boston: Butterworths.

White, Carl Milton and Associates. Sources of Information in the Social Sciences: A Guide to the Literature. Chicago: American Library Association.

Worldcasts. Cleveland, Ohio: Predicasts, Inc. (Quarterly. Short-range and long-range forecasts of economic indicators.)

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8118 MATH-SCIENCES BUILDING
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